

In re Patent Application of:
ESPOSITO CORCIONE ET AL.
Serial No. 10/728,361
Filing Date: December 4, 2003

In the Claims:

Claims 1-5 (canceled).

6. (Previously presented) A hybrid vehicle comprising:

- an internal combustion engine;
- an electric motor;
- a drive wheel associated with said electric motor and having a hub;
- an axle extending into the hub of the drive wheel;
- at least one rechargeable battery;
- a power circuit for driving said electric motor by drawing power from said at least one rechargeable battery and for recharging said at least one rechargeable battery; and
- an electronic torque management unit for controlling said internal combustion engine and said electric motor;

said electric motor being reversible and comprising

- a ferromagnetic pack mounted on said axle for forming a stator within the hub of the drive wheel, and
- a rotor mounted adjacent the stator within the hub of the drive wheel.

7. (Previously presented) A hybrid vehicle according to Claim 6, wherein said electronic torque management unit controls said internal combustion engine and said electric motor so that both are powering the hybrid vehicle at a same time.

In re Patent Application of:
ESPOSITO CORCIONE ET AL.
Serial No. 10/728,361
Filing Date: December 4, 2003

8. (Previously presented) A hybrid vehicle according to Claim 6, wherein said electronic torque management unit controls said internal combustion engine and said electric motor so that only one is powering the hybrid vehicle.

9. (Previously presented) A hybrid vehicle according to Claim 6, wherein the hybrid vehicle is a motorcycle and the drive wheel associated with said electric motor is a front wheel; and wherein said electric motor is in the hub of the front wheel.

10. (Previously presented) A hybrid vehicle according to Claim 6, wherein the rotor of said electric motor comprises a permanent magnetic rotor.

11. (Previously presented) A hybrid vehicle according to Claim 10, wherein said permanent magnetic rotor comprises a sintered drum having a magnetic material that is permanently magnetized along longitudinal bands for defining a plurality of magnetic poles having an alternating polarity around a circumference of the drum.

12. (Previously presented) A hybrid vehicle according to Claim 6, wherein said power circuit comprises a phase winding driving circuit for the stator of said electric motor, a battery charger circuit and terminals wired to the stator; and wherein said electronic torque management unit configures the terminals as output terminals for said phase winding driving circuit and as input terminals for said

In re Patent Application of:
ESPOSITO CORCIONE ET AL.
Serial No. 10/728,361
Filing Date: December 4, 2003

battery charger circuit.

13. (Previously presented) A motorcycle comprising:

- an internal combustion engine;
- an electric motor;
- a front wheel associated with said electric motor and a rear wheel associated with said internal combustion engine, said front wheel having a hub;
- a front axle extending into the hub of said front wheel;
- at least one rechargeable battery;
- a power circuit for driving said electric motor by drawing power from said at least one rechargeable battery and for recharging said at least one rechargeable battery; and
- an electronic torque management unit for controlling said internal combustion engine and said electric motor; said electric motor being reversible and comprising
 - a ferromagnetic pack mounted on said front axle for forming a stator within the hub of said front wheel, and
 - a rotor mounted adjacent the stator within the same hub of said front wheel.

14. (Previously presented) A motorcycle according to Claim 13, wherein said electronic torque management unit controls said internal combustion engine and said electric motor so that both are generating torque on their respective front and rear wheels at a same time.

In re Patent Application of:
ESPOSITO CORCIONE ET AL.
Serial No. 10/728,361
Filing Date: December 4, 2003

15. (Previously presented) A motorcycle according to Claim 13, wherein said electronic torque management unit controls said internal combustion engine and said electric motor so that only one is generating torque on their respective front and rear wheel.

16. (Previously presented) A motorcycle according to Claim 13, wherein the rotor of said electric motor comprises a permanent magnetic rotor.

17. (Previously presented) A motorcycle according to Claim 16, wherein said permanent magnetic rotor comprises a sintered drum having a magnetic material that is permanently magnetized along longitudinal bands for defining a plurality of magnetic poles having an alternating polarity around a circumference of the drum.

18. (Previously presented) A motorcycle according to Claim 13, wherein said power circuit comprises a phase winding driving circuit for the stator of said electric motor, a battery charger circuit and terminals wired to the stator; and wherein said electronic torque management unit configures the terminals as output terminals for said phase winding driving circuit and as input terminals for said battery charger circuit.

19. (Previously presented) A method for powering a hybrid vehicle comprising an internal combustion engine, an electric motor,

a drive wheel associated with the electric motor

In re Patent Application of:
ESPOSITO CORCIONE ET AL.
Serial No. 10/728,361
Filing Date: December 4, 2003

and, having a hub, an axle extending into the hub of the drive wheel, and at least one rechargeable battery, the method comprising:

driving the electric motor by drawing power from the at least one rechargeable battery and for recharging the at least one rechargeable battery, the electric motor being reversible and comprising a ferromagnetic pack mounted on the axle for forming a stator within the hub of the drive wheel, and a rotor mounted adjacent the stator within the hub of the drive wheel; and

controlling the internal combustion engine and the electric motor using an electronic torque management unit.

20. (Previously presented) A method according to Claim 19, wherein the electronic torque management unit controls the internal combustion engine and the electric motor so that both are generating torque at a same time.

21. (Previously presented) A method according to Claim 19, wherein the electronic torque management unit controls the internal combustion engine and the electric motor so that only one is generating torque.

22. (Previously presented) A method according to Claim 19, wherein the hybrid vehicle is a motorcycle and the drive wheel associated with the electric motor is a front wheel; and wherein the electric motor is in the hub of the front wheel.

In re Patent Application of:
ESPOSITO CORCIONE ET AL.
Serial No. 10/728,361
Filing Date: December 4, 2003

23. (Previously presented) A method according to Claim 19, wherein the rotor of the electric motor comprises a permanent magnetic rotor.

24. (Previously presented) A method according to Claim 23, wherein the permanent magnetic rotor comprises a sintered drum having a magnetic material that is permanently magnetized along longitudinal bands for defining a plurality of magnetic poles having an alternating polarity around a circumference of the drum.

25. (Previously presented) A method according to Claim 19, wherein the hybrid vehicle further comprises a battery charger circuit for recharging the at least one rechargeable battery.